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Punitive Patent Liability: A Comparative Examination*

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INTRODUCTION

Monetary damage awards and permanent injunctions have long been viewed as complementary remedies: damages as compensation for past realized harm, and injunctions as a restriction against future unrealized harm. But at times these complements may be seen as possible substitutes. In the context of patent infringement, each of these remedies has been identified at different times as mechanisms necessary to prompt *ex ante* bargaining for patent licenses.¹ The use of monetary damages as a penalty to deter infringing behavior is conceptually straightforward. But some commentary also argues that the potential for injunctive relief is essential to provide deterrence against opportunistic or strategic patent

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1. See, e.g., Roger D. Blair & Thomas F. Cotter, *An Economic Analysis of Damages Rules in Intellectual Property Law*, 39 WM. & MARY L. REV. 1585, 1640 (1998) (discussing damages); Paul J. Heald, *Optimal Remedies for Patent Infringement: A Transactional Model*, 45 HOUSTON L. REV. 1165, 1193-94 (2008) (discussing injunctions).

infringement; in other words, that injunctions are in effect a punitive remedy.²

At the same time, recent direction from the Supreme Court has curtailed the routine availability of patent injunctions under particular circumstances.³ As with all equitable relief, the availability or unavailability of patent injunctions under the Supreme Court's test is premised in large measure on the adequacy of remedies at law,⁴ specifically, on the adequacy of substituting monetary damages for injunctive exclusivity. The implication is that these two forms of remedy will sometimes be equivalent, and other times will not, but that when either the punitive effects of injunctions are unnecessary, or damages will be equally effective, patent holders should receive the latter remedy. The question remains when, if ever, this is the case. In particular, if punitive remedies are sometimes needed in patent cases, the adequacy of legal remedies will depend on whether damages will accomplish the needed deterrence, or whether instead injunctions will sometimes be indispensable.

This equivalence calculus may be viewed as an offshoot of the broader literature investigating the tradeoff between property rules, classically defined as a right to exclude, and liability rules, classically defined as a right to be paid.⁵ Injunctions are the paradigmatic example of the former sort of legal rule; monetary damages are the paradigmatic example of the latter. To some extent the issue may also be viewed as a question regarding the value of injunctions: what measure of monetary remedy, if any, will provide the equivalent deterrence to an injunction, and is there an incommensurable measure of injunctive deterrence that damages cannot provide?

My vehicle for considering these questions here will be the global series of disputes surrounding "standard essential patents"

2. See, e.g., Heald, *supra* note 1; Paul Heald, *Permanent Injunctions as Punitive Damages in Patent Infringement Cases*, in *INTELLECTUAL PROPERTY AND THE COMMON LAW* (Shyamkrishn Balganesch ed., 2013).

3. Christopher Cotropia, *Compulsory Licensing Under TRIPS and the Supreme Court of the United States' Decision in eBay v. MercExchange*, in *PATENT LAW: A HANDBOOK OF CONTEMPORARY RESEARCH* 557, 568 (Toshiko Takenaka & Rainer Moufang eds., 2008) (describing the effect of the Supreme Court's *eBay* decision).

4. See Samuel Bray, *The Supreme Court and the New Equity*, 69 *VAND. L. REV.* 997 (2015) (observing that the Supreme Court's recent jurisprudence has reinvented the distinction between legal and equitable remedies).

5. See Michael Krauss, *Property Rules vs. Liability Rules*, in *ENCYCLOPEDIA OF LAW AND ECONOMICS, VOL. II. CIVIL LAW AND ECONOMICS* 782 (Boudewijn Bouckaert & Gerrit De Geest eds., 2000).

(SEPs) in handheld telecommunication devices, a set of disputes sometimes dubbed the “smartphone wars.” The availability of punitive injunctions has been a central question in debates over the proper remedial response to SEP infringement. The disposition of injunctions related to SEPs is thus an important issue in its own right, but also provides a starting point for broader inquiry. Because of the legal and economic peculiarities surrounding technical standards, SEPs provide a limiting instance for examining the punitive effects of injunctive relief. Characterizing and understanding punitive effects in the SEP context allows us to examine the substitution of injunctive and monetary remedies under conditions where important parameters of the comparison are fixed to a degree that may not obtain in other situations. Understanding punitive injunctions in the context of SEPs then allows the issue to be considered where the parameters are more variable.

In particular, my entry point to the discussion will be the judicial opinions of prominent jurists in the United States and Germany, addressing the question of injunctive relief under similar circumstances. These jurisdictions have been focal points for SEP litigation, and the contrasting approaches taken across the Atlantic nicely crystalize the arguments for employing damages or injunctions. I will suggest, first, that as a general rule damages may substitute for injunctions to deter bad-faith behavior by patent infringers; second, that the literature supports such a substitution of damages for injunctive remedies in instances of bad faith or willfulness; and third, that substitute damages are appropriately modified or enhanced when bad faith or willfulness is found. In the particular context of SEP infringement, these propositions leave open a path to deter strategic behavior by potential licensees, while setting remedial defaults that deter the more serious problem of strategic behavior by SEP owners.

I will argue in this article that, in the SEP context, any requirement for punitive effects can be met by the properly calibrated award of damages, and routinely *should* be met by the properly calibrated award of damages, because of the risk of costly overcompensation to patent holders that is entailed in injunctive relief. I begin by describing the peculiar remedial characteristics of SEP disputes in the telecommunications sector. I then turn to the preferences for injunctions or damages expressed in prototypical German and American SEP decisions. Unpacking those judicial preferences, I lay out the incentive structures that accompany patent injunctions and patent damages, and a framework for addressing punitive substitution of those remedies. In doing so, I draw together

several disparate strands of recent scholarship on patent remedies. I conclude with some observations regarding the implementation of the framework.

I. INFRINGEMENT OF STANDARD ESSENTIAL PATENTS

My immediate focus in this paper is on the choice of remedies applied to suits over “standard essential patents” or SEPs. Such patents display an unusual economic profile, and so pose special remedial problems when they are enforced. Their unusual character arises from the technical necessity of technological interoperability or compatibility. Interoperable technologies such as computers or telecommunications devices tend to converge on a standard: technical commonality is necessary in order for devices to function together.⁶ Technical diversity becomes less feasible in such circumstances. In some cases, such convergence arises out of physical interoperability, which entails actual networking, requiring compatible hardware and software interaction. Such technical interaction was in fact the origin of the “network” terminology, when the effect was observed in conjunction with landline telephone systems. But the effect may also arise out of virtual networks, which is to say widespread adoption of a single standard that attracts compatible products and operator training, even if physical interoperability is not at issue.

Convergence on a universal standard leads to so-called “network effects”: the technical standard becomes increasingly valuable as additional users adopt it, conforming to the standard.⁷ Users of a network gain substantial positive spillover benefits from conforming to the existing standard, both as savings from not having to develop an independent technology, and from valuable interaction with other adopters as the network grows. Conversely, such spillovers can result in negative externalities that are reciprocal to the positive effects. Users who leave the network will have fewer opportunities to interoperate with compatible technology; because interoperable technology will tend to converge on a single standard, competing substitutes and alternatives will not be available.

Indeed, negative externalities may leave users “locked in” to the standard due to the high transactional and opportunity costs of

6. CARL SHAPIRO & HAL R. VARIAN, *INFORMATION RULES: A STRATEGIC GUIDE TO THE NETWORK ECONOMY* 45-46 (1999).

7. Mark A. Lemley & David McGowan, *Legal Implications of Network Economic Effects*, 86 CAL. L. REV. 479, 483 (1998).

switching away from it.⁸ Network effects can also yield related negative externalities in the form of suppressed competition and monopoly: without competing products, costs for the standard will be high, and lock-in may slow technical progress as users are deterred from switching to improved alternatives. This may particularly be a problem for incremental technical advancements, as the value of a new substitute will have to be high enough to warrant the costs of switching. In either case, control over the standard may confer substantial economic benefits to the owner, as exclusion from the network may effectively constitute exclusion from the market. Thus, control over standards is sometimes a concern of competition or antitrust authorities.⁹

A particular concern of competition authorities is therefore the origin and emergence of standards. Technical standards may at times emerge spontaneously from a market scrimmage among competing candidates, the chaotic outcome of consumer preference, and other complex factors. Just as often these standards are chosen deliberately by standard setting organizations (SSOs) that select from among the possible candidates a coordinated common specification.¹⁰ SSOs exist in many technical fields, sometimes as purely private conferences of manufacturers and other actors, sometimes as official governmentally-created panels, and sometimes as quasi-official governmentally-recognized hybrid groups. The rules and circumstances and external oversight of SSOs vary widely; in particular, the formally stated rules for handling SEPs vary among SSOs, although the standardization problem takes the same general contours in every industry.

8. Siebrasse and Cotter have explained that this is due to the combined value of sunk costs and opportunity costs once the user is committed to the standard. See Norman V. Siebrasse & Thomas F. Cotter, *The Value of the Standard*, 101 MINN. L. REV. 1159, 1171 n.42 (2017).

9. Some economic commentators have puzzlingly argued that injunctions are required in the SEP context because declared SEPs are often not in fact essential, and, rather, that pressure from antitrust regulators prompts patent owners to unnecessarily declare their patents standard essential. See Peter Camesasca et al., *Injunctions for Standard Essential Patents: Justice is Not Blind*, 9 J. COMP. L. & ECON. 285, 287 (2013). It seems manifestly clear that the solution to such a problem, if the problem in fact exists, is to better calibrate the requirements for declarations of standards essentiality, rather than to try to injunctively correct such mistakes after the fact. Indeed, a partial solution might be to hold such SEP declarations to an estoppel standard, under which the patent would be treated under the FRAND considerations discussed here; if such treatment is indeed unfavorable to non-SEP patents, gratuitous SEP declarations would be less likely.

10. Mark A. Lemley, *Intellectual Property Rights and Standard-Setting Organizations*, 90 CAL. L. REV. 1889, 1904–07 (2002).

The SEP problem derives substantially from the peculiarities of network effects. Network externalities become especially problematic when the standard chosen is subject to intellectual property rights, such as those of a patent. Because of network effects, the adoption of the standard typically gives the standard owner enormous market leverage. The addition of exclusive legal rights in the form of a patent may greatly enhance such leverage. Competitors must adopt the chosen technical standard in order for their products to interoperate with one another; products that do not conform to the standard are technically excluded from functionality. Patents add an additional layer of exclusivity: the holder of a patent could use its exclusivity to pick and choose who is able to compete in the market for the particular technology, and possibly to exclude some potential rivals altogether.¹¹

When an SSO deliberately selects a technical standard, a common solution to the patent concern is to require the patent holder, when its technology is selected as a standard, to agree to license the technology on “fair, reasonable and nondiscriminatory” (FRAND) terms to all adopters.¹² The precise meaning of the terms “fair” and “reasonable” remains elusive, particularly with regard to price.¹³ “Nondiscriminatory” licensing seems somewhat more concrete: the patent holder makes licenses available to all potential adopters, surrendering the right to exclude under the patent. The patent holder essentially opts into a voluntary compulsory licensing regime, exchanging the right to exclude for the economic windfall of selection by the SSO.

Because the meaning of “fair” and “reasonable” typically remains indeterminate, disputes over the use of patented standards occur with some frequency, particularly in the telecommunications market, where consumer demand for devices is high, interoperability is essential, and any given device, such as a smartphone, incorporates

11. Joseph Farrell et al., *Standard Setting, Patents, and Hold-Up*, 74 ANTITRUST L. J. 603, 616 (2007); Douglas Lichtman, *Understanding the RAND Commitment*, 47 HOUSTON L. REV. 1023 (2010).

12. In the United States, the formulation is often “RAND,” standing for “reasonable and non-discriminatory.” See Joseph Scott Miller, *Standard Setting, Patents, and Access Lock-In: RAND Licensing and the Theory of the Firm*, 40 IND. L. REV. 351, 353 (2007) (defining “RAND” licenses). Although the shortened acronym leaves out the “fair” term, it appears that this makes little difference, and the type of license expected in each case is the same.

13. Pierre Larouche & Nicolo Zingales, *Injunctive Relief in Disputes Related to Standard-Essential Patents: Time for the CJEU to Set Fair and Reasonable Presumptions*, 10 EURO. COMP. J. 551, 554–55 (2014).

scores of essential standards and hundreds of patented components.¹⁴ Device manufacturers may use the patented standard without seeking a license in advance, perhaps on the assumption that the license, which has been promised on FRAND terms, may be negotiated later. Sometimes bargaining occurs *ex ante*, breaks down, and the device manufacturer begins using the required standard anyway. Sometimes no attempt at bargaining occurs at all. No doubt some unauthorized users hope to escape detection or otherwise avoid payment of royalties. But frequently there are accusations by the standard user that the license, if sought or offered, was on unreasonable or unfair terms.

The promise of a FRAND license does not dedicate the patent to the public or make the patent unenforceable; SEP holders may sue, often successfully, any unauthorized users of the standard when they are discovered. Adopters of SEP technology may welcome or invite the lawsuit, perhaps by means of a declaratory judgment action, in order to resolve the licensing question. This may amount to effectively allowing the court to set the royalty rate that could not be negotiated between the parties, albeit after the expenditure of considerable litigation expense. In other instances, the adopter may see a lawsuit as continued SEP owner overreaching, an extension of intransigent negotiations, or outright violation of the FRAND promise.

A wave of such legal actions has occurred around the globe over the last decade, regarding telecommunications SEPs. Not surprisingly, such suits are concentrated in the jurisdictions that have the largest and most lucrative markets for consumer telecommunications devices. These so-called “smartphone wars” have produced a string of judicial decisions in major jurisdictions, including multiple decisions in the United States and in Germany, and additional decisions in Korea, the Netherlands, the United Kingdom, and elsewhere. A major remedial sticking point in nearly all such suits arises from the request for a permanent injunction after the patent is judged valid and infringed. A plaintiff’s prayer for such relief is commonplace in patent enforcement, and the U.S. patent statute explicitly provides for such a remedy. The question in SEP FRAND cases is whether a patent owner is similarly entitled to injunctive relief or whether SEP cases are somehow different due to the previous promise of a FRAND license.

14. Lichtman, *supra* note 11, at 1024–25.

II. COMPARATIVE INJUNCTIVE CONSIDERATIONS

To consider this question, I begin by juxtaposing the approaches taken on different sides of the Atlantic by American and German judges considering permanent injunctions for SEP infringement. My goal here is comparative; not so much in the sense of comparing the doctrinal equivalents in different national jurisdictions, although some comparison of that sort will inevitably occur. Rather, I hope to compare two different, largely oppositional policies regarding the proper deployment of injunctions and their substitution for remedial damages. The distinctive approaches of the American and German courts in the SEP context are emblematic of these positions. My interest here is primarily policy; if there is a comparative aspect to the inquiry, it is one of comparative policy more than comparative law.

In SEP cases, German trial courts have regularly granted the patent holder's demand for a permanent injunction against the unauthorized use of the patented standard. Unlike other national European courts and American courts adjudicating similar disputes, German courts have seemed largely indifferent to the argument that the previous FRAND commitments made by SEP holders altered the legal circumstances for patent enforcement. When combined with the size of the German market for the sale of handheld computing devices, the amenability of the German courts to granting injunctions not surprisingly made Germany the venue of choice for SEP owners.¹⁵

Defendants in German FRAND cases could in theory avoid the customary injunction through a series of unilateral maneuvers under the doctrine articulated in the *Orange Book Standard* decision.¹⁶ This legal standard first requires that the accused infringer offer unconditional licensing terms sufficiently favorable that a patent holder could not reasonably refuse them, and second, that the accused infringer begins behaving as if this license were already in place, tendering the favorable royalty either directly to the patent holder or into an escrow account.¹⁷ The rationale behind the two-part standard seems to combine palpable proof of good faith by the alleged infringer

15. Alison Jones, *Standard Essential Patents: FRAND Commitments, Injunctions, and the Smartphone Wars*, 10 EUROPEAN COMP. J. 1, 10–12 (2014).

16. Bundesgerichtshof [BGH] [Federal Court of Justice] May 6, 2009, GRUR INT. 747 (Ger.), *translated in* 41 IIC 369, 369–75 (2010).

17. These aspects of the standard appear to have gone unrecognized and unconsidered in the economic commentary by Langus and co-authors. *See supra* note 9.

with the moderate threat of antitrust sanctions: a patent holder who refused generously favorable payments would presumably be abusing a dominant market position.¹⁸ Yet, as some commentators have noted, the *Orange Book Standard* framework is sufficiently onerous that no defendant appears to have ever satisfied it.¹⁹

The precise rationale behind a rule of effectively automatic grant of a permanent injunction could be somewhat opaque without the benefit of parallel actions outside of Germany. The decisions of the German courts of first instance (trial courts) are directed to the parties in the dispute and are not usually made public. But translations of some German decisions have become available through the court filings in parallel U.S. cases, allowing some insight into the reasoning of the German courts. Language of the opinion of the Regional Court of Mannheim in the SEP dispute between Motorola Mobility and Microsoft might be taken as evocative of the stance adopted by the German courts for routinely granting a permanent injunction:

If the seeker of the license were in a position to successfully defend against claims for an injunction by the patent owner by arguing that the latter was obligated to grant a license anyhow, on its own volition, the patent owner would be at the mercy of any dishonest licensee, for whom there would be no more incentive to enter into licensing negotiations.²⁰

Even standing alone, this passage is striking in its concern over the potential victimization of the SEP owner. But I want to firmly set aside the concern that this view is either peculiarly German, or that it is somehow an artifact of German law. No doubt the Mannheim court's view is influenced by the civil law tradition, by the procedural peculiarities of Germany's bifurcated patent adjudication, and by other idiosyncrasies of the German system. But these factors are largely beside the point. The United States Court of Appeals for the

18. Kristian Henningsson, *Injunctions for Standard Essential Patents Under FRAND Commitment: A Balanced, Royalty-Oriented Approach*, 47 IIC—INT. REV. INT. PROP. & COMP. L. 438–69 (2016).

19. Marcus Grosch, *Patent Infringement Proceedings before the Landgericht Mannheim and the Oberlandesgericht Karlsruhe*, in ZEITSCHRIFT FÜR JAPANISCHES RECHT, SONDERHEFT 3, PATENT LITIGATION IN JAPAN AND GERMANY 41, 48 (Guntram Rahn ed., 2011).

20. Regional Court of Mannheim, 2nd Civil Division, Case 2:10-cv-01823-JLR, Document 324–326, filed 5/21/2012.

Federal Circuit, the American court with exclusive appellate jurisdiction over patent cases, has long had precisely the same policy as that of the German courts: a prevailing patent holder is entitled to an injunction simply by virtue of prevailing.²¹ So American courts are not strangers to the German court's approach.²²

Nonetheless, the quotation from the Mannheim decision is even more striking when contrasted with language from a contemporaneous American SEP dispute between Apple and Motorola Mobility.²³ Sitting by designation as a trial judge, Richard Posner of the United States Court of Appeals for the Seventh Circuit took entirely the opposite view on injunctions from that of his German counterparts:

By committing to license its patents on FRAND terms, Motorola committed to license the '898 [patent] to anyone willing to pay a FRAND royalty and thus implicitly acknowledged that a royalty is adequate compensation for a license to use that patent. How could it do otherwise? How could it be permitted to enjoin Apple from using an invention that it contends Apple *must* use if it wants to make a cell phone with UMTS telecommunications capability . . . ?²⁴

As between the two quotations there is a fundamental difference in viewpoint: are we to be more worried about strategic behavior by the licensor or the licensee? The Mannheim court's opinion reveals an overriding concern for the latter evil: that an unscrupulous competitor may use the standard essential patent without a license, hoping not to be caught, and hoping perhaps if caught to pay no more than it would have been paid in a license negotiated up front.²⁵

21. See, e.g., *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1247 (Fed. Cir. 1989).

22. See Thomas F. Cotter, *Reining in Remedies in Patent Litigation: Three (Increasingly Immodest) Proposals*, 30 SANTA CLARA HIGH TECH. L.J. 1, 17 (2013) (noting the parallel between the stances of the Federal Circuit and German courts on automatic patent injunctions).

23. *Apple Inc. v. Motorola, Inc.*, 869 F. Supp. 2d 901 (N.D. Ill. 2012), *aff'd in part*, *Apple Inc. v. Motorola, Inc.*, 757 F.3d 1286 (Fed. Cir. 2014).

24. *Id.* at 913–14.

25. See Pierre Larouche & Nicolo Zingales, *Injunctive Relief in Disputes Related to Standard-Essential Patents: Time for the CJEU to Set Fair and Reasonable Presumptions*, 10 EURO. COMP. J. 551, 593–94 (2014) (characterizing the German approach as dominated by concern over “runaway” licensee behavior).

Under such a stratagem, the infringer would sometimes avoid any payment, and sometimes it may pay the FRAND rate. The infringement is thus seen as a sort of probabilistic gamble on paying the licensing fee, discounted *ex ante* by the likelihood of enforcement.²⁶

Deterring such strategic gambles when they are detected is the rationale behind dispensation of an almost automatic injunction. On this view, the injunction plays the role of a punitive remedy, negating the probabilistic discount and penalizing opportunistic infringement.²⁷ The injunction gives the patent holder enormous *ex post* bargaining leverage, interdicting any sale of the claimed invention, potentially placing at risk the infringer's entire investment in the invention.²⁸ The patent holder is thus in a position to extract nearly the full value of the infringer's investment.²⁹ When the injunction is always expected, the probability of a complete loss of the investment, or of a payment that nearly negates the investment, becomes part of the infringer's *ex ante* calculus. Assuming that the FRAND license is less costly than the draconian payment that may be extracted after an injunction—discounting the injunction cost, again, by the likelihood of detection and enforcement—strategically-behaving competitors may, according to this logic, seek the license upfront rather than risk the costlier infringement gamble.³⁰

26. See Heald, *supra* note 1, at 1182 (describing such probabilistic infringement calculus).

27. Similar concerns have been expressed by some European economic commentators. See Gregor Langus, Vilen Lipatov, & Damien Neven, *Standard Essential Patents: Who is Really Holding Up (and When)?*, 9 J. COMP. L. & ECON., 253 (2013); Camesasca et al., *supra* note 9. Like Professor Cotter, I am skeptical regarding the salience of these highly stylized models, see Cotter, *supra* note 22, at 13 n.46; Thomas F. Cotter, *Comparative Law and Economics of Standard-Essential Patents and FRAND Royalties*, 22 TEX. INTELL. PROP. L.J. 311, 348-49 (2014). Rather than any doctrinal consideration of patent remedies, these papers rely for their legal understanding on a survey (!) of attorneys in various EU jurisdictions. In particular, with regard to my inquiry here: the papers assume that only purely compensatory damages are available, and none of them examines the deterrent effect of enhanced damages vis a vis punitive injunctions. Those assumptions seem questionable even under European law. See *infra* notes 154–162 and accompanying text.

28. See Mark A. Lemley & Carl Shapiro, *Patent Holdup and Royalty Stacking*, 85 TEXAS L. REV. 1991, 2008–10 (2007); see also Thomas F. Cotter, *Patent Holdup, Patent Remedies, and Antitrust Responses*, 34 J. CORP. L. 1151, 1153–54 (2009) (defining characteristics of patent holdup in the SEP context).

29. See Siebrasse & Cotter, *supra* note 8.

30. Blair & Cotter, *supra* note 1, at 1640.

While Judge Posner undoubtedly recognizes the hazard of strategic infringement,³¹ in the SEP context he seems less concerned about strategic behavior by infringers and greatly concerned by the potential for strategic behavior by the patent holder. Channeling a competitor toward a FRAND license only makes sense where there is a FRAND license to be had. If the competitor sought a license and was refused, or if the patent holder could easily have offered and negotiated FRAND licensing terms, then we may infer that the patent holder is after more than a FRAND royalty. In such circumstances it makes little sense either to give the patent holder punitive *ex post* leverage or to create an *ex ante* deterrent to a common standard that will not be made voluntarily available.

Even in a normal *ex ante* bargaining situation, there is typically a cap on the price that a patent owner can extract, which is the cost to the defendant of switching to the next best alternative technology. This cap will also be present in the case of the injunction; an enjoined competitor will not agree to a license that costs more than switching to a non-patented alternative or inventing around the patented technology.³² But in the case of the standard essential patent, there is no alternative technology; the presence of the technical requirement effectively locks all competitors into adoption of the patented standard. Switching to an alternative technology is generally not an option; the options are to either adopt the patented standard or to leave the market. Consequently, the value of the injunction is just shy of the full value of the defendant's participation in that market, almost always far in excess of any reasonable royalty.

Denying the injunction of course leaves the question of what to do about the patent holder's exclusive rights, since by the point of decision over injunctive relief, the patent has been adjudicated both valid and infringed. On Posner's view, the patent holder has previously stated a preference for reasonable licensing terms in order to secure endorsement of his technology as a technical standard, but after the endorsement has begun instead seeking injunctive bargaining leverage.³³ From this perspective the FRAND commitment, rather than solving the standards problem, is instead a type of bait-and-

31. See, e.g., *Mathias v. Accor Econ. Lodging*, 347 F.3d 672, 677 (7th Cir. 2003) (Posner, J.) ("If a tortfeasor is 'caught' only half the time he commits torts, then when he is caught he should be punished twice as heavily in order to make up for the times he gets away.").

32. *Siebrasse & Cotter*, *supra* note 8.

33. *Apple Inc. v. Motorola, Inc.*, 869 F. Supp. 2d at 914, *aff'd in part*, *Williamson v. Citrix Online, LLC*, 757 F.3d 1286 (Fed. Cir. 2014).

switch on the part of the patent holder who promised non-exclusive fair and reasonable terms but later demands injunctive exclusivity.³⁴ Indeed, some commentators have suggested that this type of FRAND licensing breakdown should be analyzed in terms of fraud, or perhaps in terms of an estoppel that precludes a change in position by the patent holder when the change would be detrimental to reliant competitors.³⁵

Posner's posture on injunctive relief might be seen as fitting within a number of traditional concerns about patents; courts have historically characterized patents as an extraordinary right, a restraint on trade that potentially enables considerable mischief in the marketplace, but which is tolerated as a necessary evil to induce technical investment.³⁶ Injunctions themselves have long been characterized as extraordinary remedies,³⁷ and so the combination of the two might be viewed as a potent mixture to be handled with special care. But this has certainly not been Posner's position toward patents in previous opinions concerning the related issues of patent misuse or the potential anticompetitive effect of patents, where he has been relatively sanguine about the role of exclusive rights in the marketplace.³⁸ While he has expressed a need for patent reform, he has simultaneously recognized the need for exclusive rights in costly innovation.³⁹ Whatever motivates his observations above, it does not appear to stem from any ideological hostility to patents or patent holders.

We must instead look elsewhere for the theory that animates his reasoning, in particular to contextualize his characterization of the patent holder's revealed preference for FRAND licensing, and the implications for that preference under American jurisprudence of rational choice. Judge Posner is of course best known as a prominent standard-bearer for the economic analysis of law, which he has for several decades now championed in both academic and juridical

34. See Robert P. Merges & Jeffery M. Kuhn, *An Estoppel Doctrine for Patented Standards*, 97 CAL. L. REV. 1, 11–13 (2009).

35. *Id.* at 21–24.

36. See, e.g., *Motion Picture Patents Co. v. Universal Film Co.*, 243 U.S. 502, 511 (1917) (explaining that patents are only tolerated in order to promote the public good).

37. *Monsanto Co. v. Geerston Seed Farms*, 561 U.S. 139, 165 (2010).

38. See, e.g., *USM Corp. v. SPS Technologies, Inc.*, 694 F.2d 505, 511 (7th Cir. 1982) (“But there is nothing wrong with trying to make as much money as you can from a patent.”).

39. See Richard Posner, *Why There are Too Many Patents in America*, THE ATLANTIC (July 12, 2012).

contributions.⁴⁰ American jurisprudence has been dominated for the past several decades by such economic rationales, and particularly by the so-called “Chicago School” of neoclassical supply-side approach to legal activity. It would be fair to say that this approach strongly favors private ordering of markets, and that tradeable property entitlements, in the form of exclusive rights, are crucial and desirable legal entities for Chicago School analysts. Injunctions are the judicial instantiation of such exclusive rights.

Thus, given that Judge Posner is closely identified with the development and promulgation of this economic approach to legal analysis, it may in some sense come as a surprise to see his SEP opinion disallowing a patent holder’s demand for an injunctive, property rule remedy. But something more than a simplistic preference for property entitlements lies behind his reasoning—economic analysis does not always settle on property rules. Posner is for example famously sympathetic to intellectual property remedies that deter infringers from circumventing the market,⁴¹ and that may lead him in the direction of a remedy in the form of a liability rule.

III. PROPERTY & LIABILITY REGIMES

Posner’s opinion above, while denying injunctive relief, does not leave a patent holder without recourse: a monetary damages remedy is still available. By providing only a damages remedy, Posner might be said to follow a liability rule. Remedies scholars (among others) have long employed the terminology of “property rules” and “liability rules” that was popularized by Calabresi and Melamed in their influential article on legal entitlements.⁴² Property rules in this context refer to the legal right to exclude; the companion concept of liability rules entails the legal right to be paid, as opposed to the right to exclude. These two categories map fairly readily onto the judicial remedies of injunctive relief and monetary damages; indeed, the most common way to effectuate each type of legal entitlement is by a court order mandating the cognate remedy. Property rules are paradigmatically effectuated by injunction; liability rules are paradigmatically effectuated by damages.

40. WILLIAM DOMNARSKI, RICHARD POSNER 66 (2016).

41. *See infra* note 104 and accompanying text.

42. Guido Calabresi & A. Douglas Melamed, *Property Rules, Liability Rules, and Inalienability: One View of the Cathedral*, 85 HARV. L. REV. 1089 (1972).

The widespread use of this rubric has so thoroughly identified exclusivity with the term *property* that it has become emblematic of the concept, to the virtual exclusion of any other aspect of property entitlements. But I should make clear that I entertain little sympathy for the dogmatic notion that because patents are defined as property rights, by virtue of that definition their owners are necessarily entitled to injunctions.⁴³ This type of argument rests to some degree upon the assumption that patent holders have some immanent or inalienable right to patent entitlements, and moreover to patent entitlements in the form that they currently take.

I make no such assumption here. My concern here is not with the welfare of patent holders, but with the general welfare, and my inquiry is one from first principles. Patents are believed in general to advance the public's interests.⁴⁴ The usual utilitarian justification for patents rests upon the proposition that it is acceptable for consumers and competitors to be restricted from accessing patented technologies, and to be charged artificially inflated prices for patented items, so long as their inconvenience is outweighed by the overall public good in prompting innovation.⁴⁵ If the benefits accompanying patent restrictions do not outweigh their costs, then the restrictions become at least suspect, and likely expendable. What is sauce for the goose is sauce for the gander; if the goal is to promote social welfare, then in some cases this may mean enforcing patent exclusivity; in others, it may mean denying patent exclusivity.⁴⁶

Even in the paradigm case of real property, we routinely curtail exercise of exclusivity in the public interest, imposing a range of needed easements, covenants, and limitations on the rights of the property owner.⁴⁷ There is no reason to think that patents should not be similarly limited and encumbered when the public interest demands

43. See Shyamkrishna Balganesh, *Demystifying the Right to Exclude: Of Property, Inviolability, and Automatic Injunctions*, 31 HARV. J.L. & PUB. POL'Y 593, 638–39 (2008) (noting that the modern equation of property with the right to an injunction overlooks the equitable roots of injunctive relief).

44. See Dan L. Burk, *The Law and Economics of Intellectual Property: In Search of First Principles*, 8 ANN. REV. L & SOC. SCI. 397 (2012).

45. See Erik Hovenkamp & Thomas F. Cotter, *Anticompetitive Patent Injunctions*, 100 MINN. L. REV. 871, 871–72 (2016).

46. See *id.* at 879–80 (arguing that injunctions are justified only where exclusivity is required to induce market entry).

47. See Dan L. Burk, *Muddy Rules for Cyberspace*, 21 CARDOZO L. REV. 121, 126 (1999); see also Mark A. Lemley, *Property, Intellectual Property, and Free Riding*, 83 TEX. L. REV. 1031 (2005) (questioning facile comparisons between intellectual property and real property).

it. To the extent that the label of “property” obscures this principle, it may well be that rather than reference to “intellectual property” we would do better to refer to “immaterial goods” as some German scholars have suggested, if only to remove the category error of asserting that because it is called property, it must necessarily entail exclusivity.

The characterization of patents as property rights is therefore a conclusion rather than a premise. The question here is whether the punitive effects of permanent injunctions further social welfare, not whether they further the welfare of patent holders. Those interests may sometimes coincide, but if they diverge, I have no qualms over sacrificing the injunction remedy of patent holders in favor of the public. If patent exclusivity for SEPs is more costly than beneficial, I am entirely comfortable advocating restriction, modification, or abolition of patent injunctions, notwithstanding the interests of patent holders, if such an action leads to better social outcomes. If circumstances so dictate, we may well choose to designate the rights in a FRAND-encumbered patent as carrying a right to be paid rather than a right to exclude.

Having said that, it remains the case that in current American legal discourse, liability rules tend to be disfavored—certainly in the patent context, the concept of the compulsory license, a type of liability rule, is considered legislative anathema. To the extent that this reaction is not simply visceral, the rationale disfavoring liability regimes stems from perceived inefficiencies inherent in the legal imposition of a payment figure on the parties.⁴⁸ Fact-finding is imperfect and never fully discovers the pertinent information that would be revealed in a voluntary private transaction. Judges and other governmental actors, it is hypothesized, will inevitably lack the private valuation information that the parties hold. Compulsory licensing will therefore be inefficient because the state, having at best incomplete information about the valuation of the licensing parties, will tend to set the wrong price. The parties to a transaction, on the other hand, know their own intrinsic valuation of the exchange. Granting a property right such as a patent allows them to bargain, harnessing the private valuation information held by each party, to which a governmental arbiter such as a judge is not privy.

Much of this rationale derives from the Coase theorem, a fundamental tenet in American economic analysis on which Calabresi

48. Richard A. Epstein, *A Clear View of the Cathedral: The Dominance of Property Rules*, 106 YALE L.J. 2091, 2093, 2099 (1997).

and Melamed based their framework.⁴⁹ In circumstances of low transaction costs, Coase postulates that property rights will be moved to their socially optimal use because other parties will pay for transfer of the rights if they are more valuable to those other parties than they are to the initial entitlement holder. On this view, injunctions may precede a socially efficient transfer: patent holders who are granted an injunction will waive enforcement in return for a payment by the party who is enjoined if the payment is greater than the patent owner's valuation of the injunction. Payment to waive the injunction will only occur if the enjoined party values the waiver more than the patent holder values the injunction. Thus, in general, injunctions could be thought of as tools to force private bargaining; in the patent context, this implies that they are tools to facilitate conclusion of a license.⁵⁰ By giving a property right to exclude into the hands of one of the parties, the other party is forced to the bargaining table, and the parties can engage in Coasean bargaining to set their own price for the license.

But much of Coase's point in developing this hypothetical—a point sometimes lost on subsequent commentators⁵¹—is that typically transaction costs are *not* low, so that placement of an initial entitlement may be sticky. Transaction cost impediments may prevent exchange of the exclusive right after it has been assigned, leaving it fixed where it was originally bestowed. And of course governmental entities—who write the rules regarding initial property entitlements—are as imperfect at determining the proper assignment of property rights as they are at determining the proper level of liability payments, having again less knowledge of the entitlement's private value than do the parties.

Consequently, liability regimes may provide an alternative. A liability rule may be considered as a second-best default when a property rule is unavailable or unworkable.⁵² The most common concession to liability regimes tends to arise in the scenario of high transaction costs, where private exchange is hampered, so that purely private ordering becomes untenable.⁵³ For example, even though it

49. Ronald Coase, *The Problem of Social Cost*, 3 J.L. & ECON. 1 (1960).

50. See Lichtman, *supra* note 11, at 1042.

51. See Deirdre McClosky, *The So-Called Coase Theorem*, 24 EASTERN ECON. J. 367, 368 (1998) (decrying the pervasive misrepresentation of Coase's most famous work).

52. James E. Krier & Stewart J. Schwab, *Property Rules and Liability Rules: The Cathedral in Another Light*, 70 N.Y.U. L. REV. 440, 451 (1995).

53. *Id.*; Ian Ayres & J.M. Balkin, *Legal Entitlements as Auctions: Property Rules, Liability Rules, and Beyond*, 106 YALE L.J. 703, 706 n.9 (1996).

might be preferable for parties to a dispute to negotiate to a resolution, if transaction costs will impede the exchange, it may be better for a neutral third-party arbiter, such as a judge, to set the price of the bargain than to have no bargain occur at all. The judge may have imperfect information about the correct level of payment, but transfer of the court's best estimate of the value comes closer to the efficient outcome than no transfer.⁵⁴

In this regard, looking once again to the German FRAND licensing decisions, it is worth observing that the German courts have in theory left open the possibility of denying an injunction to the patent holder under the *Orange Book Standard Case* framework.⁵⁵ The intent of the test might be taken as a judicial method for information forcing, revealing the parties' valuations by shifting to the infringer a burden of estimating the highest feasible valuation of the FRAND license and observing the patent holder's response. In effect, the *Orange Book Standard* rule may be viewed as a type of compulsory licensing scheme, allowing the defendant to purchase the patent holder's exclusive right at a cost, approved by the court, lying at the outermost bounds of the patent right—the price beyond which the patent holder would be abusing its exclusivity and would be exposed to antitrust liability. In practice, this test has proven essentially impossible to satisfy, so that injunctions routinely issue anyway.⁵⁶ As mentioned previously, the typical compulsory licensing concern regarding third-party valuation of the license is that an adjudicator is likely to set the license price too low;⁵⁷ here it seems likely that German courts have facilitated routinely setting the price far too high.

This framework has since been largely disapproved by the Court of Justice of the European Union (CJEU) in its *Huawei v. ZTE* decision.⁵⁸ The *Huawei* case was a smartphone SEP dispute certified to the CJEU from the German national courts; the question posed was whether an SEP holder who had promised FRAND licensing violated EU competition law by “abusing a dominant market position” when it

54. All other things being equal—Polinsky points out that these arguments depend upon not only the information available to the arbiter, but also the cost of enforcement, strategic opportunities of the parties, and related costs. Mitchell A. Polinsky, *Resolving Nuisance Disputes: The Simple Economics of Injunctive and Damage Remedies*, 32 STAN. L. REV. 1075 (1980).

55. See *supra* notes 16–19 and accompanying text.

56. See Grosch, *supra* note 19.

57. See *supra* notes 48–49 and accompanying text.

58. Case C-170/13 (delivered 16 July 2015); see also Peter Pict, *The ECJ Rules on Standard-Essential Patents: Thoughts and Issues Post-Huawei*, 37 EUR. COMP. L. REV. 365 (2016) (discussing the effects of the *Huawei* decision).

sought an injunction against a potential licensee. In addressing the question, the CJEU necessarily addressed the *Orange Book* framework, and in effect reversed the presumption followed by the German courts.⁵⁹ Contrary to the *Orange Book* doctrine, the CJEU placed on the SEP holder the burden of making an appropriate FRAND offer and allowed for injunctive relief only if the patent holder's attempt at fair and reasonable licensing were rejected.

Under this approach, competition law again polices the patent holder's behavior, but rather than being triggered by *rejecting* a potential FRAND offer, the competition violation is instead triggered by seeking an injunction without *making* a FRAND offer.⁶⁰ Thus *Huawei* again implements an information-forcing rule, but by requiring the patent holder, rather than the potential licensee, to reveal its FRAND valuation. This seems eminently sensible given that the patent holder who made the FRAND declaration likely has the best information as to what range of royalties that offer entailed. The defendant again takes what is effectively a compulsory license either at the SEP owner's price if it is reasonable or at a price set by the court if the offer is unreasonable.

An additional common rationale for favoring the permanent injunction is one of judicial economy and management. Classically, damages remedies are thought to be backwards looking; they attempt to monetarily compensate for past wrongs. Injunctions are classically thought to be forward looking; they prevent future harms by forbidding expected harmful actions. Thus, on this view, damages might be awarded for the value of past infringement. Awarding damages for future infringement might entail ongoing management by the court, requiring the patent holder to return periodically to the forum to prove up and recover the cost of additional increments of infringement as they occur. Awarding an injunction might be expected to avoid this ongoing exercise by forcing the parties to bargain toward an outcome, perhaps with eventual approval by the court in the form of a modification or termination of the injunction, but in any event with minimal judicial attention.

59. See Philipp Maume, *Huawei v. ZTE, or, How the CJEU Closed the Orange Book*, 6 QUEEN MARY J. INTELL. PROP. 207 (2016).

60. While this is a distinct improvement over the inverse *Orange Book* approach, I tend to agree with Professor Cotter that it would be preferable to embed the limits against patent overcompensation within patent law itself, rather than relying on an exterior competition law analysis. See Cotter, *supra* note 27, at 352; Cotter *supra* note 22, at 16.

However, under certain circumstances, injunctions may contribute to transaction cost impediments. In past writings, Posner points out that imposition of an injunction, under conditions that leave the parties no bargaining recourse, may create an insurmountable bilateral monopoly: only the defendant can comply with the order, and only the plaintiff can release the defendant.⁶¹ *Ex ante* bilateral monopoly might occur in SEP situations where the field of potential licensees is highly restricted, but probably this is not the norm. But imposition of the injunction may well lead to bargaining impasse rather than to renewed negotiation, at least where the FRAND promise is strategic or gratuitous. If the concerns of the German courts are justified, and the defendant is behaving strategically when the patentee is willing to license, then one can imagine the injunction forcing the defendant to the bargaining table. But this relies upon the good graces of the supposedly willing SEP licensor.

Granting an exclusive right may instead lead to bargaining breakdown in the SEP context because the patentee holding an injunction, or knowing that he will automatically hold an injunction, will have little reason to negotiate. Due to the network effects associated with technical standards, the injunction may give too much leverage to the patent holder, as there is literally no substitute for the technical standard, putting the potential licensee's entire business at risk. The holder of the injunction can potentially extract nearly the entire value of the licensee's business; the only alternative for the licensee is to be entirely excluded from the market. Thus the price negotiated in the SEP context may have little to do with the patent holder's true valuation and more to do with the patent holder's opportunism.

A final line of argument that has emerged for preferring property rules asserts that, even under situations of high transaction cost, property regimes will sort themselves out into cost-avoidance institutions.⁶² Thus, even though liability rules may be optimal, rather than impose a liability rule, one should allow the parties to construct their own liability regime beginning with property entitlements. Patent pools and blanket licensing consortia have been touted as examples of such licensing institutions based on exclusive entitlements.⁶³

61. RICHARD POSNER, *ECONOMIC ANALYSIS OF LAW* 70–71 (6th ed. 2003).

62. Robert P. Merges, *Contracting into Liability Rules: Intellectual Property Rights and Collective Rights Organizations*, 84 CAL. L. REV. 1293 (1996).

63. *Id.*

The general danger in relying on the prospect of such institutions is that where transaction costs impede Coasean bargaining, privately structured liability systems may be unlikely to emerge.⁶⁴ Neither is the initial form of the entitlement determinative; as Professor Lemley has noted, it is also fairly common for parties, when faced with a governmentally-determined licensing price, and finding the price to be excessive, to bargain from that starting point toward an alternative and more agreeable price.⁶⁵ Thus, judicial imposition of a compulsory license need not be the final word on the price to be paid and may instead serve to place the parties in a negotiating position by imposing an initial position that narrows their respective bargaining ranges.

In the particular case of SEPs, this final argument likely poses no challenge to judicially-imposed damages regimes and may in fact support the routine deployment of such liability rules. The FRAND commitment itself may be viewed as a form of contracting into a liability rule, by which the SEP owner trades its ability to demand exclusivity for a voluntarily agreed-upon royalty.⁶⁶ Thus, far from abrogating or stripping away patent exclusivity, denial of an injunction in the SEP context may validate the patent owner's preferred use of her property rights.

IV. LEVERAGING LIABILITY RULES

Even within patent law's bastion of property rules, liability rules are well known. Statutory liability regimes, in the form of compulsory licensing for patents, are a relatively common feature of patent systems outside the United States. Even in the American patent system, which is famously resistant to liability regimes, compulsory licensing does occasionally occur with regard to technical standards.

64. See Burk, *supra* note 47, at 171–72; see also Julie E. Cohen, Lochner in Cyberspace: The New Economic Orthodoxy of “Rights Management”, 97 MICH. L. REV. 462, 499–501 (1998) (noting that such organizations appear only in small, closed assemblages of participants).

65. Mark A. Lemley, *Contracting Around Liability Rules*, 100 CAL. L. REV. 463, 464–65 (2012).

66. See Lemley, *supra* note 10, at 1948–57 (equating SSOs with Merges' voluntary liability systems); see also Miller, *supra* note 12, at 353–58 (extending Lemley's argument). Richard Epstein has also characterized the FRAND commitment in essentially this way, as a bargained exchange of exclusivity for a guaranteed income stream. Richard A. Epstein & Kayvan B. Noroozi, *Why Incentives for 'Patent Holdout' Threaten to Dismantle FRAND, and Why It Matters*, 32 BERKELEY TECH. L.J. 1381 (2017).

Thus, Section 308 of the Clean Air Act provides a mechanism by which a party subject to air pollution standards can obtain a compulsory patent license to technology that is required for compliance with the emissions standards.⁶⁷ This occurs by court order after certification that no reasonable alternative technologies are available, and voluntary licensing negotiations have failed. Similarly, under the Atomic Energy Act, patented technologies relating to civilian uses of fissile materials may be compulsorily licensed at a royalty set by the Nuclear Regulatory Commission.⁶⁸

In a few historical instances, American courts have created such compulsory licenses by declining injunctions in the public interest, but this could only occur where the general welfare concern was sufficiently plain and compelling to trump a patent holder's acknowledged exclusive rights. Perhaps the paradigm example of such a compelling interest might be *City of Milwaukee v. Activated Sludge*,⁶⁹ where the patent owner held a patent on a method of treating sewage.⁷⁰ The method had been adopted by the City of Milwaukee without authorization of the patent holder.⁷¹ In a suit against the city, the patent was adjudicated valid and infringed.⁷² Despite these findings, the court refused the patent owner's petition for a permanent injunction, on public health grounds.⁷³ Damages were awarded for the infringement, but the threat of shutting down municipal sewage treatment was not a bargaining chip the court cared to supply to the patent holder.⁷⁴

Such decisions were a relative rarity until recently. As mentioned above, the long-standing policy of the Federal Circuit was to routinely award a permanent injunction where a patent was found valid and infringed.⁷⁵ The court's rationale was based upon the straightforward, even simplistic definition of patents as property rights: since the essence of property is the right to exclude,⁷⁶ that right

67. 42 U.S.C. § 7608 (2012).

68. 42 U.S.C. § 2183(e) (2012).

69. 69 F.2d 577 (7th Cir. 1934).

70. *Id.* at 579.

71. *See id.* at 583.

72. *Id.* at 578.

73. *Id.* at 593.

74. *See id.*

75. *See supra* note 21 and accompanying text.

76. *See, e.g.,* *Connell v. Sears, Roebuck & Co.*, 722 F.2d 1542, 1548 (Fed. Cir. 1983) (“[A] patent is a form of property right, and the right to exclude recognized in a patent is but the essence of the concept of property.”).

must be vindicated by an exclusory remedy.⁷⁷ To some extent this policy tracked equitable remedies in land, where trespass to real property was typically presumed to constitute an irreparable injury that would be inadequately remedied by monetary damages.⁷⁸

This presumption was famously reversed in *eBay v. MercExchange*,⁷⁹ where the Supreme Court examined the statutory mandate that patent injunctions should issue on equitable grounds. According to the Supreme Court, this statutory provision requires that the courts weigh four traditional factors found in equitable consideration: the adequacy of monetary damages as a remedy, the likelihood of irreparable damage to the patent holder in the absence of an injunction, the comparative hardship to the defendant if an injunction is imposed, and the public interest. It is not clear how traditional these factors may be, given that the first and second are essentially the same inquiry,⁸⁰ and there was no previous history of such factors being weighed for permanent—as opposed to preliminary—injunctions.⁸¹ But traditional or not, this test has become the dominant metric for permanent injunctions in the American federal system, not only for patents, but generally.⁸²

For American patents, the *eBay* standard effectively creates a compulsory license or liability regime where the four factors align against exclusivity.⁸³ The infringer is in essence deemed to have a right to use the claimed invention, subject to a damages “royalty” imposed by the court. Indeed, since the promulgation of the *eBay* framework, American courts have become inured to the absence of the injunctive remedy in certain cases, and now routinely award an

77. *Robert Bosch L.L.C. v. Pylon Mfg. Corp.*, 659 F.3d 1142, 1149 (Fed. Cir. 2011) (discussing superseded presumption mandating permanent injunctions).

78. See Douglas Laycock, *The Death of the Irreparable Injury Rule*, 103 HARV. L. REV. 687, 705 (1990).

79. 547 U.S. 388 (2006).

80. See THOMAS F. COTTER, *COMPARATIVE PATENT REMEDIES: A LEGAL AND ECONOMIC ANALYSIS* 102, 102–03 (2013).

81. Douglas Laycock, *How Remedies Became a Field: A History*, 27 REV. LITIG. 161, 168 (2008); Caprice L. Roberts, *The Restitution Revival and the Ghosts of Equity*, 68 WASH. & LEE L. REV. 1027, 1037 (2011); Doug Rendleman, *The Trial Judge’s Equitable Discretion Following eBay v. MercExchange*, 27 REV. LITIG. 63, 76 n.71 (2007) (“Remedies specialists had never heard of [*eBay*’s] four-point test.”).

82. See *Bray*, *supra* note 4, at 1029–30; Mark P. Gergen, John Golden & Henry E. Smith, *The Supreme Court’s Accidental Revolution? The Test for Permanent Injunctions*, 112 COLUM. L. REV. 203, 215 (2012).

83. Cotropia, *supra* note 3, at 573.

“ongoing” royalty to cover future acts of infringement.⁸⁴ This is a compulsory license in the truest sense of the term, imposed by a court on the parties, at a royalty determined by the court using the best evidence available. The remedy is intended both to compensate the injured patent holder while avoiding the problem of ongoing judicial supervision: rather than repeated actions by the plaintiff to recover accrued damages, the court determines a price and orders payment prospectively.⁸⁵

To the extent that punitive deterrence appears in the *eBay* calculus for SEP infringement, it perhaps appears under the consideration of the public interest. As a general matter, in patent cases it is often difficult to tell which direction this public interest factor cuts: the public has a certain interest in maintaining a functional patent system that rewards innovation. But because the public bears the cost of increased prices from patent exclusivity, it also has a decided interest in moving innovation out of exclusivity and into the public domain at the earliest opportunity consistent with maintaining necessary rewards. SEP injunctions will typically dramatically raise the public cost of exclusivity. Because interoperable technologies will tend to converge on a standard, there is a manifest public interest in making that standard widely available.⁸⁶ Denying the injunction and compulsorily licensing the standard both compensates the patent holder and allows widespread access.

Some economic analysts, returning to the patent incentive rationale, have advanced the concern that without the promise of an injunction, SEP developers will have insufficient incentives to innovate in the information technology and telecommunications space.⁸⁷ Like previous legal commentators, I am skeptical of this

84. See Christopher B. Seaman, *Ongoing Royalties in Patent Cases After eBay: An Empirical Assessment and Proposed Framework*, 23 TEX. INTELL. PROP. L.J. 203 (2015).

85. Mark A. Lemley, *The Ongoing Confusion over Ongoing Royalties*, 76 MO. L. REV. 695, 697 (2011).

86. Hanns Ullrich, *Patents and Standards: A Comment on the German Federal Supreme Court Decision Orange Book Standard*, 41 IIC – INT’L. REV. INTELL. PROP. & COMPETITION L. 337, 348 (2010).

87. See Bernhard Ganglmair et al., *Patent Hold Up and Antitrust: How a Well-Intentioned Rule Could Retard Innovation*, J. INDUS. ECON. 261 (2012); see also Peter Camesasca et al., *supra* note 9. But see Hovenkamp & Cotter, *supra* note 45, at 902–04 (advancing a formal model that indicates injunctive relief reduces total social welfare for FRAND encumbered inventions).

particular suggestion.⁸⁸ The generally agreed policy justification for patenting is indeed to provide innovators an exclusive right that would allow them to recoup their investments in novel technologies. But this implies that what is required is not the promise of an injunctive exclusivity per se, but the promise of a future income stream sufficient to prompt optimal innovation investment. As I have pointed out above, there is no particular reason this income cannot be provided through a properly calibrated compulsory license just as well as it could be provided by negotiation over a court order.

And, as Professor Cotter points out, the compulsory license option allows an adjudicator to take into account the potential public costs of an SEP royalty, rather than leaving the SEP holder to his own devices.⁸⁹ We might under other circumstances be concerned that the patent holder's business plan for recouping her investment costs requires market exclusivity, so that denying the injunction would frustrate the patent holder's preferred approach to recovering its investment costs. But in the case of FRAND-committed SEPs, this issue need not particularly concern us; the SEP holder will have made an explicit representation that exclusivity is not necessary, only a reasonable royalty, and so presumably has a business model under which the royalty is adequate. In terms of the *eBay* analysis, FRAND-encumbered patents entail a public statement by the patent holder as to the adequacy of monetary damages and as to the lack of any hardship if an injunction were denied. Consequently, the need for exclusivity does not dictate the requirement of an injunction, as it might in other situations.⁹⁰

This leaves as the potential justification for an injunction only the punitive effects that I suggested by the Mannheim quotation above and the question as to whether that function may just as well be served by a sufficient quantum of monetary damages. Injunctive relief is generally considered to be prospective relief; while damages compensate for harms that have already occurred, injunctions are

88. See Cotter, *supra* note 27. As I have mentioned above, the models from which these suggestions stem are highly stylized, and do not take into account the range of remedial mechanisms I have engaged here. See *supra* notes 9 and 27. Additionally, while the models focus on the context of the European Union, they incorporate incomplete assumptions regarding the relevant law. See *supra* note 27.

89. See Cotter, *supra* note 22, at 16–17.

90. For example, the need for market exclusivity rather than the adequacy of a license is what has allowed the *eBay* test to address untoward strategic leverage in cases involving non-practicing entities (NPEs), sometimes termed “trolls.” See Dan L. Burk, *Intellectual Property in the Cathedral*, 4 ZEITSCHRIFT FÜR GEISTIGES EIGENTUM 405, 409–10 (2013).

intended to prevent future harms from occurring. In particular, the injunction is expected to curtail harms that might reasonably be expected to stem from the future acts of those subject to the injunction. But employment of injunctions for punitive purposes somewhat deviates from this pattern, prohibiting future conduct, not to maintain the status quo against future harms committed by the enjoined party, but to provide general deterrence against future harmful activities committed by potential infringers not party to the particular lawsuit.

On this point, it is worth noting that injunctive relief does not magically provide exclusivity; judicial injunctions build no walls and deploy no armies. Injunctive exclusion depends in large part on the parties' respect for the forum, and to some extent on a court's contempt power, which itself is largely premised on monetary fines.⁹¹ While incarceration is available for certain types of contempt,⁹² in the context of a patent injunction, disobedience will typically be sanctioned by means of fines intended to be sufficiently expensive to compel compliance with the order.⁹³ Thus, whether or not the injunction is intended to be punitive, its enforcement is clearly intended to be, and contempt sanctions are related to the cost of the injunction by making compliance appear comparatively cheaper.⁹⁴ A similar policy calculus will of course lie behind the award of damages: enough to maintain incentives for patent holders, enough to deter strategic behavior by potential infringers, but not so much as to make an essential standard overly expensive. Either monetary damages or contempt-backed injunctive relief lead ultimately to the same place, although the injunctive route may arrive there more quickly.⁹⁵

V. RESTITUTIONARY PARALLELS

Injunctions seem to be poorly suited to accomplishing the proper degree of deterrence in SEP cases, but if damages are to accomplish such purposes, they will require careful calibration. Fortunately, some guidance may be had from looking at restitutionary

91. DAN B. DOBBS, DOBBS ON REMEDIES § 2.8(1), at 186 (2d ed. 1993).

92. *Id.* at 187.

93. John Golden, *Injunctions as More (or Less) than "Off Switches": Patent-Infringement Injunctions' Scope*, 90 TEX. L. REV. 1399, 1411 (2012).

94. Indeed, the Federal Circuit has approved of trebling contempt sanctions, much as district courts treble damages in extraordinary cases. *Spindelfabrik Suessen-Schurr v. Schubert & Salzer Maschinenfabrik Aktiengesellschaft*, 903 F.2d 1568, 1578 (Fed. Cir. 1990).

95. *See* Golden, *supra* note 93, at 1471.

remedies; the purposes and structure of restitutionary remedies parallels the purposes and structure we have set out for SEP damage awards.

Specifically, the maximum payment that a patent holder, armed with injunctive leverage, can extract from an accused infringer would presumably be the full profit that the infringer anticipates receiving from the enjoined activity.⁹⁶ If the patent holder demands more than that, the infringer will simply go out of business, or at least out of that business. The concern over hold-up by SEP holders is that an SEP holder armed with an injunction will do precisely that: demand a payment sufficiently high that it will eliminate a competitor. Turning instead to damages, the monetary equivalent to extracting a competitor's full profit is the restitutionary remedy of disgorgement. Unlike monetary damages at law, the measure of the restitutionary award is what was wrongfully gained by the defendant, rather than what was wrongfully lost to the plaintiff. In some cases those may be the same, but in the majority of cases they will be quite different.

Thus, restitutionary relief entails a version of the same problem identified by the German courts, which is of course that extracting the defendant's gains does not by itself fully create a deterrent against wrongful behavior.⁹⁷ Simple disgorgement, if defined as removing the defendant's marginal net gains, would put the wrongdoer back at square one, making the unjust enrichment, by definition, unprofitable.⁹⁸ But this leaves the defendant no worse off than if he had not attempted the improper course of action, except perhaps for the cost of defending a lawsuit, and even that might not always materialize as a cost—a state that Bert Huang has termed the “equipoise” outcome.⁹⁹ Because unjust enrichment might not always be detected or rectified, the behavior could be probabilistically attractive. The restitutionary remedy only becomes available once unjust enrichment is pled, proven, awarded, and enforced. A strategic

96. See Heald, *supra* note 1, at 1180.

97. See Saul Levmore & William J. Stuntz, *Remedies and Incentives for Private and Public Law: A Comparative Essay*, 1990 WIS. L. REV. 483, 484–86 (arguing that effective deterrence must include probabilistic costs for instances of wrongdoing without harm).

98. Bert I. Huang, *The Equipoise Effect*, 116 COLUM. L. REV. 1595, 1598 n. 10 (2016); see also Robert D. Cooter, *Punitive Damages, Social Norms, and Economic Analysis*, 60 LAW & CONTEMP. PROBS. 73, 78 (1997) (terming this “perfect disgorgement”).

99. Huang, *supra* note 98, at 1598.

wrongdoer might therefore be probabilistically tempted to engage in unjust activity, discounting the cost by the likelihood of enforcement.

Something beyond simple disgorgement is therefore necessary if the goal is to deter wrongful behavior.¹⁰⁰ The law of restitution has developed a spectrum of penalties, largely tied to the degree of scienter attached to the act of unjust enrichment. Restitution treats intentional acts of unjust enrichment quite differently than unintentional acts. Unintentional or innocent acts, such as receipt of a mistaken payment or benefit, entail liability for the fair value of the item received or taken. Thus, restitution requires innocent or good-faith beneficiaries of unjust enrichment to simply transfer back to the plaintiff the equivalent of his loss. Intentional or conscious acts, however, are subject to full disgorgement of the wrongdoer's profit, including those that do not constitute a loss to the plaintiff, transferring the entire benefit of the act away from the defendant into the hands of the plaintiff. In some cases, restitution may even go a bit beyond full disgorgement of the gains related to the wrong, requiring as an added penalty the surrender of overhead or opportunity costs.¹⁰¹

Defendants who might have strategically hoped to gamble on a probabilistic benefit therefore pay a higher price in restitution. In some of his writings Posner has suggested that restitution is thus the appropriate remedy where a defendant has circumvented the market, that is, where the defendant has engaged in self-help rather than bargaining when a negotiation was feasible.¹⁰² This concern stems at least in part from the costs of wasteful litigation; where available, market transactions will be less costly than bargains enforced by the coercive mechanisms of the state.¹⁰³ Plaintiffs are left with little choice other than to engage these costly mechanisms when defendants who might have bargained instead engage in self-help.

100. See Robert Cooter & Ariel Porat, *Disgorgement Damages for Accidents*, 44 J. LEGAL STUD. 249, 258–67 (2015); Cooter, *supra* note 98; A. Mitchell Polinsky & Steven Shavell, *Should Liability Be Based on the Harm to the Victim or the Gain to the Injurer?*, 10 J.L. ECON & ORG. 427, 428 (1994).

101. See RESTATEMENT (THIRD) OF RESTITUTION AND UNJUST ENRICHMENT § 40 (2011); see also Mark P. Gergen, *Causation in Disgorgement*, 92 B.U. L. REV. 827, 830 (2012) (noting that courts deter wrongdoing by ignoring opportunity costs in disgorgement calculations).

102. Posner, like many economic analysts of law, long favored “self-help” in the contract area in the form of efficient breach. Posner, *supra* note 61, § 4.8 at 133. But even he has argued for disgorgement of profits in cases of what he has termed “opportunistic breach” in order to deter strategic breaches. *Id.* at 130–31.

103. William M. Landes & Richard A. Posner, *An Economic Theory of Intentional Torts*, 1 INT’L REV. L. & ECON. 127, 135 (1981).

Restitution can be used to make the market, rather than self-help, attractive by incorporating opportunity costs into disgorgement. Rather than sharing in the gains from trade that would occur by striking a bargain in the market, the restitutionary defendant is required to disgorge all his gains, including whatever surplus he would have enjoyed but for circumventing the market.¹⁰⁴ Thus, reasoning that the quantum of the intellectual property owner's loss will typically be less than an infringer's gain, Posner suggests that disgorgement of the infringer's profit should provide incentives to encourage voluntary transactions that might otherwise be bypassed.¹⁰⁵

Consequently, restitutionary remedies may facilitate private bargaining; by requiring disgorgement of the defendant's profits, the incentive to circumvent the market is eliminated. Of course, in high transaction cost situations, where no bargain would occur anyway, self-help might sometimes be efficient and appropriate. Outside of the intellectual property context, this principle is perhaps most famously illustrated by cases involving necessary trespasses, such as tying a boat to a dock without permission in order to save it from an oncoming storm.¹⁰⁶ In such cases, despite violating the dock owner's exclusive rights, the trespasser is liable only for actual losses to the property owner, not for the value of the benefit gained.¹⁰⁷ Here again, the modulation of restitutionary outcomes according to the degree of scienter provides the proper incentive to engage in self-help, paying the owner after the fact, or engaging in negotiation *ex ante*.

Patent awards might similarly differentiate between SEP infringers who are strategic infringers and those who are making efficient use of a FRAND offer. In the case of the SEP patent where the patent owner is strategically withholding the FRAND license, we want to deliver to the patent holder, and to extract from the infringer, the measure of damages equivalent to the FRAND royalty, but no more. There is no reason to reward or encourage strategic behavior by recalcitrant SEP owners, any more than there is reason to encourage or reward strategic behavior by potential licensors when the patent holder is willing to license. Where the infringer is, as the German courts apparently fear, behaving strategically by unreasonably refusing FRAND offers and engaging in probabilistically opportunistic infringement, we can increase the damages penalty in

104. See Huang, *supra* note 98, at 1631; Gergen *supra* note 101, at 830.

105. Taylor v. Meirick, 712 F.2d 1112, 1120 (7th Cir. 1983).

106. See, e.g., Vincent v. Lake Erie Transp. Co., 124 N.W. 221 (Minn. 1910).

107. See, e.g., *id.* at 460.

just the manner that the law of restitution suggests, imposing the full measure.

There is of course always the problem of error; as I have discussed above, courts operate under incomplete information and may issue an injunction when optimally they should not, or deny an injunction when optimally they should not. In the SEP FRAND context, such errors will likely occur on different grounds than on the usual compulsory licensing informational slippages. Since—as Posner points out—we know quite a bit more than usual about the SEP owner’s license valuation from his FRAND declaration, the problem is not so much incomplete information about the parties’ private valuations. Rather, given what I have said to this point, the problem may be incomplete information regarding the defendant’s strategic behavior or degree of scienter. Evidence of the parties’ intent may be difficult to develop, or ambiguous if found.

This type of problem is exactly the type of problem that is properly addressed by a fact-dependent standard, such as the *eBay* test, rather than by a hard and fast rule.¹⁰⁸ The analysis here suggests that where the evidence of willfulness is scant or indeterminate, the default for FRAND conditioned SEPs should be denial of the injunction and reliance on damages. The SEP owner is unlikely to be harmed by imposition of a licensing royalty that he himself has publicly embraced, and certainly the public interest in encouraging standards adoption and discouraging SEP overreaching is better served. And while it is possible that some miscreant defendants may slip past a court’s scrutiny, we should expect that cost to be more than offset by deterring the incidence of overreaching SEP holders.¹⁰⁹

Some doctrinal gaps might be thought to impede actual implementation of this approach. Restitution itself is not generally thought to be an option within the monetary remedies provided by the American patent statute, where the damages options for a wronged patent holder are thought to be either the measure of lost profits or that of a reasonable royalty. Although courts once provided disgorgement of an infringer’s profits, a classic restitutionary remedy, Congress removed this option from the patent statute when the measure of

108. *See Apple, Inc. v. Motorola, Inc.*, 757 F.3d 1286, 1331–32 (Fed. Cir. 2014) (rejecting as contrary to the *eBay* framework any *per se* rule against injunctions for SEPs). While the Federal Circuit’s rejection of a *per se* rule against injunctions for SEPs was undoubtedly correct, the *eBay* factors for SEP cases will nearly always align against a permanent injunction, yielding very nearly the same result.

109. *See Cotter, supra* note 22, at 16–17.

disgorgement was perceived to be too uncertain for courts to reliably determine.¹¹⁰ What remains in the statute is a mandate to award damages “adequate” to compensate for the infringement, but “in no event less” than a reasonable royalty. The plain language of adequacy suggests that a court has some considerable flexibility in determining the measure of damages, as the language indicating no less than a reasonable royalty implies that something more than that may be awarded.

But even though disgorgement was formally eliminated from the American patent statute, John Golden and Karen Sandrik have pointed out that aspects of disgorgement may still be taken into account in the remaining statutory remedies of lost profits and reasonable royalties.¹¹¹ An infringer’s profits might be properly considered in measuring either of these types of damages. Additionally, they argue that the scienter requirements found in assessing restitutionary remedies may properly be considered when setting patent damages.¹¹² Such metrics can both be incorporated into compensatory damages and used in setting ongoing royalties that might replace a punitive injunction, providing the intentionality calibration I have advocated here.

Even without grafting restitutionary metrics onto patent damages provisions, the American patent statute includes additional provisions that might be employed to impose necessary penalties. Section 284 of the statute authorizes the award of enhanced damages up to treble the amount found by the trier of fact. According to the Supreme Court, such discretionary awards are appropriate in cases of willful, deliberate, or egregious infringement, according to the degree of culpability of the infringer.¹¹³

This provision might be used to award enhanced damages for willful infringement of a standard essential patent, which would be indicated where the infringer was aware of the patent, refused a FRAND licensing offer, and proceeded to use the patented technology

110. See Caprice L. Roberts, *The Case for Restitution and Unjust Enrichment Remedies in Patent Law*, 14 LEWIS & CLARK L. REV. 653, 654–70 (2010).

111. John M. Golden & Karen E. Sandrik, *A Restitution Perspective on Reasonable Royalties*, 36 REV. LITIG. 335 (2016); see also John M. Golden, *Reasonable Certainty in Contract and Patent Damages*, 30 HARV. J. L. & TECH. 257, 274–75 (2017) (arguing that judges may properly take into account blameworthiness in calculating reasonable royalty patent damages).

112. See Golden & Sandrik, *supra* note 111.

113. *Halo Elecs., Inc. v. Pulse Elecs., Inc.*, 136 S. Ct. 1923, 1928 (2016).

anyway.¹¹⁴ This approach was in fact recently adopted in an SEP dispute, *Core Wireless Licensing S.A.R.L. v. LG Elecs., Inc.*,¹¹⁵ where the court awarded a final judgment including enhanced damages due to the infringer's knowing failure to negotiate in good faith. Evidence showed that the defendant had terminated licensing negotiations and proceeded to infringe without a license because it was reluctant to be the first in the industry to take a license, explicitly expressing a preference to delay licensing until some other firm had first worked through licensing details.

Some punitive deterrence may also be available from a second damages provision of the American patent statute, allowing a district court to award attorney's fees in "exceptional" cases.¹¹⁶ While the award of attorney's fees to the prevailing party is common in many jurisdictions, including Germany, under the American system each party to a lawsuit typically bears its own costs. The patent statute's fee-shifting provision is therefore unusual, and according to the Supreme Court, may be invoked at the discretion of the district court, based on the totality of the circumstances.¹¹⁷ Major factors in the designation of an exceptional case are clearly the strength of the prevailing party's legal position and its conduct during litigation. It would therefore not be untoward to shift attorney's fees in a case where the defendant had strategically circumvented or avoided an available FRAND license for a valid patent, thereby both consciously placing itself in a risky infringement posture and unnecessarily requiring the patent holder to initiate a lawsuit to compel compliance.

VI. PARALLEL ANALYSES

Scholarship on patent remedies currently benefits from a profusion of thoughtful analysis, much of which supports discrete points I have made here, and when drawn together buttresses the overall direction of my argument. For example, in a recent paper, Carl Shapiro examines the trade-off between property or liability rules in

114. Gregory Sidak, *Enhanced Damages for Infringement of Standard-Essential Patents*, 1 CRITERION J. INNOVATION 1101, 1101, 1106 (2016).

115. Case No. 2:14-cv-912-JRG, 2016 WL 4718963, at *2-4 (E.D. Tex., Nov. 1, 2016).

116. 35 U.S.C. § 285 (2012).

117. *Octane Fitness LLC v. Icon Health & Fitness Inc.*, 134 S. Ct. 1749, 1756 (2014).

the patent context.¹¹⁸ Shapiro provides a formal model analyzing the *ex ante* bargaining incentives created by injunctive or monetary relief. He notes that where the infringer will experience high costs in switching away from the patented technology, injunctive regimes may provide the patent holder perverse incentives to prefer infringement because of the rents that can be extracted after litigation.¹¹⁹ Additionally, because *ex ante* bargaining in the shadow of injunctions may result in excessively high royalty rates, Shapiro concludes that the award of ongoing royalties may be preferable where switching costs are high relative to a court's accuracy in assessing damages.¹²⁰ He suggests the converse may also be true, making injunctions preferable in situations where switching costs are small relative to the accuracy of a court's damages assessment.¹²¹

In the SEP context, switching costs may be said to be large, possibly infinite—if the patented invention is in fact an essential standard, there may be no alternative to which a competitor can switch. Additionally, while the calculation of FRAND royalties may be complex, courts have the FRAND commitment itself as an indicator of the accuracy in assessing damages. The implication under Shapiro's model seems to be that royalties will nearly always be preferable to injunctions in the SEP context. Similarly, Shapiro recommends in general a mixed remedial regime for optimal bargaining incentives, in which ongoing royalties would be imposed for the period necessary for an infringer to re-design its product and switch to an alternative non-infringing technology, after which an injunction would be imposed.¹²² But in the SEP context, if there is in fact no non-infringing substitute for the patented standard, the period for imposition of the ongoing royalty would presumably be the period for which the patented invention remains the technical standard, potentially indefinitely.

Paul Heald similarly offers a useful perspective on the question of SEP remedies in his work on transactional incentives.¹²³ Heald adopts the position that patent remedies should be directed toward optimizing the number of transactions between firms with inventive

118. Carl Shapiro, *Property Rules vs. Liability Rules in Patent Infringement* (January 10, 2017), <http://faculty.haas.berkeley.edu/shapiro/propvsliab.pdf>.

119. *Id.* at 24.

120. *Id.* at 27–28.

121. *Id.*

122. *Id.* at 28.

123. See Heald, *supra* note 1.

capacity and firms seeking innovative inputs.¹²⁴ Under this approach, the application of patent remedies should create an efficient system that provides all parties optimal incentives to negotiate.

Transaction cost analysis is key to this approach. Heald argues that where transaction costs are high, so that voluntary licensing is impeded, we may prefer for potential licensees to engage in self-help, using patented technology and paying for it afterwards at a rate determined by the court—effectively a form of compulsory license.¹²⁵ This poses a different situation from lower transaction cost scenarios where the parties can bargain to their own licensing terms. The latter requires both knowledge regarding the availability of a license and an environment conducive to negotiation. He therefore distinguishes in one dimension between inadvertent infringement and intentional infringement, and in another dimension between efficient infringement, where negotiation is prohibitively costly, and inefficient infringement that bypasses market negotiations.¹²⁶

Heald argues that remedies should be calibrated to allow some transactions to occur involuntarily, and compensate patent owners after the fact if necessary.¹²⁷ He also observes that where transaction costs are low, potential licensees should typically be penalized for bypassing negotiations, in part because the cost of litigation to enforce the patent is socially wasteful when a private bargain could have been struck more cheaply.¹²⁸ By the same token, he points out that patentees should also be channeled away from expensive and wasteful litigation when negotiation would have been cheaper.¹²⁹ Indeed, overly generous schemes of remedies may induce patent holders to prefer infringement to negotiation, as the returns from investing in litigation may exceed those available through voluntary licenses.¹³⁰

This transactional framework indicates the proper deployment of punitive injunctions. Heald recommends injunctive relief as a punitive deterrent against infringement that is inefficient and intentional.¹³¹ He notes, as I have here, that restitution (in the form of

124. *Id.* at 1174.

125. *Id.* at 1176. *But see* Cotter, *supra* note 27, at 1177–79 n.137 (suggesting that the cost of determining when this situation occurs may be prohibitive).

126. Heald, *supra* note 1, at 1178.

127. *Id.* at 1176.

128. *Id.* at 1183.

129. *Id.* at 1184–85.

130. *Id.* at 1174–75.

131. *Id.* at 1193–94.

accounting for profits) may be equivalent to an injunction in this effect.¹³² But injunctions are inappropriate to deter self-help where *ex ante* bargaining would be costly. He also notes that punitive injunctions will be ineffective where the cost that the infringer would incur switching to an alternate technology would be low, as the injunction will have no punitive effect—the infringer will simply switch.¹³³ In such cases, he recommends enhanced damages as a punitive alternate measure.¹³⁴

Although Heald does not explicitly focus on SEP infringement, his arguments map readily onto the examples at issue in this paper. Heald's concern regarding overly generous remedies neatly fits the profile discussed above for strategic behavior by SEP owners. Relying on damages rather than injunctions is the sensible route to deter SEP owners from wasteful judicial enforcement of their patents. Similarly, under his analysis, the threat of injunction will cause SEP users to spend too much time and effort seeking licenses when self-help would be more efficient.¹³⁵

Superficially, it may seem that SEP negotiations should fall into the category of lower transaction costs; we would expect the search component of SEP licensing costs to be relatively low; the owner of an essential technical standard will likely be comparatively easy to locate.¹³⁶ Indeed, requiring that one of the parties make a FRAND offer, as under either the *Orange Book* or *Huawei* tests,¹³⁷ lowers the likelihood of non-detection to zero; the patent holder and the potential licensee will be aware of one another due to the licensing overture. This might also seem to imply that infringement will always be intentional, as use of a standard adopted by an SSO likely carries with it easily accessible information regarding the patent. But search costs are not the only transaction costs. It may be preferable to encourage self-help regarding the standard, and channel royalty determinations into court—for example, where the valuation of the parties is sufficiently disparate that they cannot agree on a price and a third-party arbiter is needed to resolve uncertainties regarding the scope or value of the patent.¹³⁸ Similarly, where the potential licensee is facing an “anticommons” landscape of multiple standard essential

132. *Id.* at 1191, 1192.

133. *Id.* at 1185.

134. *Id.*

135. *Cf. id.* at 1172.

136. *See* Lichtman, *supra* note 11, at 1042.

137. *See supra* notes 55–60 and accompanying text.

138. *See* Burk, *supra* note 47, at 138.

components and the SEP owners engaged in strategic hold-up behavior,¹³⁹ adjudication may be less socially costly than private negotiation.

This is particularly salient in the case of SEP owners who have promised FRAND licenses, as they have already committed to a particular bargaining range, so that concluding a license in the marketplace should be less socially costly. Should a court need to set the license fee after the fact, the judge should have better information than usual for doing so. In the context of FRAND commitments, we know the nature of the license in advance; we may not know the exact price tag that will be attached to the license, but we know the nature of the license in advance due to the SEP owner's declaration. Some commentators have worried that negotiations conducted in the shadow of FRAND licensing will not provide optimal incentives to innovate or will not allow recapture of the full value of the SEP.¹⁴⁰ But in a high transaction cost environment, where the negotiation is not going to occur anyway, these considerations will be academic in the worst sense of the word.

In another, lengthier analysis of patent remedies, Lee and Melamed offer a congruent analysis that points us in the same direction.¹⁴¹ While Lee and Melamed do not explicitly explore the trade-off between punitive injunctive effects and equivalent damages, this relationship is implied in their analysis. They are particularly concerned with over-compensating patent holders by penalizing infringers who could not easily switch to unpatented alternatives.¹⁴² Like Shapiro, they observe that patent infringers who are subject to injunctions after they are already committed to the patented technology experience high switching costs, and so are willing to pay

139. As formulated by Michael Heller, "anti-commons" occur where property rights are sufficiently fragmented that the multiple negotiations needed to bargain for them all become prohibitively costly. See Michael A. Heller, *The Tragedy of the Anticommons: Property in the Transition from Marx to Markets*, 111 HARV. L. REV. 621 (1998). In such situations, property owners have strong incentives to "hold up" buyers for more than the value of their particular entitlement. See Lloyd Cohen, *Holdouts and Free Riders*, 20 J. LEGAL STUD. 351, 356 (1991) (explaining "hold-out" scenarios); see also Lemley & Shapiro, *supra* note 28 (discussing patent licensing hold-up).

140. See *supra* note 87 and sources cited therein.

141. William F. Lee & A. Douglas Melamed, *Breaking the Vicious Cycle of Patent Damages*, 101 CORNELL L. REV. 385, 387–446 (2016).

142. *Id.* at 411–12.

the patent holder much more than they might have paid in an *ex ante* negotiation.¹⁴³

Lee and Melamed therefore analyze the deployment of injunctions according to whether the patent holder was willing or unwilling to license *ex ante* and whether the infringer is a guilty or innocent adopter of the patented technology, producing a matrix of contexts on two axes and four separate recommendations regarding the availability of injunctive relief:

	Willing	Unwilling
Innocent	No Injunction	Reverse liability
Guilty	No Injunction	Injunction

Like Heald, Lee and Melamed are concerned with deterring only inefficient self-help that bypassed low-cost negotiations, while encouraging self-help in situations of high transaction costs.¹⁴⁴ They therefore employ idiosyncratic, perhaps non-intuitive meanings of “innocence” and “guilt” that do not necessarily refer to scienter, but rather encompass situations of relative transaction cost: that is, where the infringer could not have cost-effectively negotiated a license, but nonetheless used the patented technology, he is dubbed an “innocent” infringer.¹⁴⁵ Where the infringer could have efficiently located the patent holder and negotiated a license, but did not, the infringer is considered “guilty.”¹⁴⁶

This definition of innocence would naturally include some situations that fit the colloquial definition of innocence, in which the infringer was ignorant or unaware of the patent. But such innocent or non-culpable infringement could also occur where the infringer is fully aware of the patent.¹⁴⁷ For example, the infringer might have already adopted the patented technology prior to issue of the patent, and continues to use it after becoming aware of it, or the infringer might be aware of relevant patents but clearing the necessary set of patent rights in an “anti-commons” or “patent thicket” situation is

143. *Id.* at 435.

144. *Id.* at 446.

145. *Id.* at 441.

146. *Id.*

147. *Id.*

difficult or impossible.¹⁴⁸ Thus the primary question is not a matter of culpability, but whether *ex ante* licensing is efficient or inefficient.

In such cases of transaction cost impediment, Lee and Melamed, like Heald, argue that self-help is efficient and should be encouraged.¹⁴⁹ The infringer may be liable for the cost of a reasonable royalty, but should not be subject to additional penalties for appropriating technology for which a license was too costly to negotiate. Rather, they argue that injunctions should only be available against infringers who are both guilty in the sense of failing to negotiate despite favorable transaction costs *and* also have appropriated technology that the patent holder was unwilling to license.¹⁵⁰ In other words, injunctions should issue only where the market has been inefficiently bypassed.

Note that this analysis contemplates essentially the converse of Posner's observation that disgorgement ought to be imposed upon defendants who have circumvented the market to engage in self-help.¹⁵¹ Where transaction costs are high, so that private bargaining is impeded, no opportunity for a less costly private agreement is lost. There is essentially no market to circumvent. The efficient infringer, once the patent is enforced, should be required to pay the price that he might have paid had search, negotiation, and other transaction costs not stood in the way, but no more. Where the patent owner would have been willing to license the patent, a license negotiated in the shadow of an injunction yields an inefficient windfall for the patent holder.¹⁵²

This analysis has clear application to the SEP/FRAND context, which the authors recognize.¹⁵³ They argue, in accord with previous commentators, that the point of the FRAND commitment is to bypass costly negotiations, allowing users to adopt the standard and determine the price after the fact.¹⁵⁴ In the case of SEP owners who have committed to FRAND licenses, Lee and Melamed argue that the SEP owner should always be considered a willing licensor based on the FRAND representation.¹⁵⁵ Thus, under their analysis, injunctions

148. *Id.* at 442.

149. *Id.* at 446.

150. *Id.* at 444.

151. *See supra* notes 102–105 and accompanying text.

152. Lee & Melamed, *supra* note 141, at 437.

153. *Id.* at 444–45.

154. *Accord* Lichtman, *supra* note 11, at 1042.

155. *Id.* at 445.

should never issue in such cases,¹⁵⁶ but compensatory damages and an ongoing royalty are appropriate.¹⁵⁷ Enhanced compensatory damages may be appropriate to deter the strategic behaviors discussed here, that is, infringement that takes advantage of probabilistic enforcement.¹⁵⁸

CONCLUSION

I have taken the SEP/FRAND situation as a limiting case to consider whether damages can play the deterrent punitive effect often ascribed to injunctions. Multiple strands of analysis indicate that permanent injunctions in SEP cases should probably be a rarity. As Judge Posner sensed, punitive injunctions in such cases are nearly always inefficient and counterproductive, yielding socially wasteful windfalls for SEP owners. General deterrence against strategic infringement can be achieved via damage awards that are sensitive to strategic patent infringement and to strategic patent enforcement. Modulating the quantum of monetary damages—including ongoing royalties—according to the intentionality of the defendant and the SEP owner allows appropriate remedies in the rare instance where deterrence rather than reasonable compensation is called for.

As the profile of a patent infringement decision moves away from the SEP scenario, particularly where the public promise of FRAND licensing is absent, permanent injunctions may be appropriate as dictated by a multi-factor analysis such as that from *eBay*. Where such analysis militates in favor of damages, punitive deterrence can be achieved, as I have indicated here. But I hasten to re-emphasize that this argument asserts a generalized solution from first principles; neither my conclusion nor its implementation hang on any peculiarity of American law or of the *eBay* decision. I indicated here at the outset that my goal in this paper is not a comparative legal analysis, as I am more interested in formulating the optimal doctrine than I am in applying existing doctrine.¹⁵⁹

Still, I cannot resist observing at this juncture that, strangely enough, given my starting place for this discussion, the damages formulation I have suggested here appears entirely available to the German courts, as all the tools to implement it appear to be available under the law of German patent remedies. Unlike the United States,

156. *Id.* at 451.

157. *Id.* at 447–48.

158. *Id.* at 461.

159. *See supra* notes 44–46 and accompanying text.

Germany has long had an explicit restitutionary provision allowing disgorgement of defendant's profits,¹⁶⁰ which is consonant with disgorgement language found in the EU Enforcement Directive.¹⁶¹ This option has recently been strengthened by decisions endorsing a more robust calculation of defendant's profits.¹⁶² Additionally, German courts have been known to explicitly consider damages deterrence of at least some aspects of the strategic infringement problem: while there is no explicit provision for enhanced damages, German courts have been open to awarding higher damages than would be negotiated by willing parties, on the theory that "self-help" infringement avoids some of the risk that would be taken in an actual negotiation. There seems no formal reason to rely solely or even primarily on injunctive deterrence against willful infringement in SEP cases.¹⁶³

This leaves only the question as to whether German (or other European) courts may substitute such damages for injunctive relief. Some question remains as to whether European courts have the flexibility that American common-law courts have to follow the remedial logic found in the *eBay* decision. Certainly the *Huawei* decision pushes the German courts away from the knee-jerk injunctions of the *Orange Book* framework,¹⁶⁴ and some commentators have already noted remedial flexibilities within the EU Intellectual Property Rights Enforcement Directive.¹⁶⁵ Article 3 of the Directive indicates that member states are to provide remedies that are

160. See Cotter, *supra* note 80, at 271–73.

161. Directive 2004/48/EC, Art. 13 (authorizing awards of "any unfair profits made by the infringer").

162. Essentially, discounts for fixed overhead costs that are not attributable to the patent infringement have been disallowed.

163. Indeed, under the German system, criminal infringement liability is available to assure punitive deterrence, although it is (probably wisely) seldom invoked. See COTTER, *supra* note 80, at 275.

164. See Peter Picht, *FRAND wars 2.0 – Rechtsprechung im Anschluss an die Huawei/ ZTE-Entscheidung des EuGH*, WIRTSCHAFT UND WETTBEWERB (May 12, 2017), https://wuw-online.owlit.de/document/zeitschriften/wirtschaft-und-wettbewerb/2017/online-exklusiv/abhandlungen/frand-wars-20—rechtsprechung-im-anschluss-a/MLX_5722? (discussing German FRAND holdings since the Huawei decision).

165. See, e.g., Ansgar Ohly, *Three Principles of European IP Enforcement Law: Effectiveness, Proportionality, Disuasiveness*, in TECHNOLOGY AND COMPETITION: CONTRIBUTIONS IN HONOR OF HANS ULLRICH 257 (Josef Drexler, ed., 2009); see also COTTER, *supra* note 80, at 247 (collecting German language sources).

“fair and equitable” and “proportionate.”¹⁶⁶ Article 11 uses permissive language, indicating that judicial injunctions “may” issue.¹⁶⁷ Article 12, titled “Alternative Measures” specifically provides that monetary damages may be provided instead of an injunction where the harm to an enjoined party would be “disproportionate” and damages would be “reasonably satisfactory”¹⁶⁸ compensation to the rights holder—considerations that clearly parallel factors in the *eBay* standard. Significantly for the discussion here, Article 12 also indicates that monetary damages are an appropriate alternative to injunctive relief when the infringer acted “unintentionally and without negligence,”¹⁶⁹ much like the restitutionary scienter standards for injunctions that I have discussed above.

166. Directive 2004/48/EC, Art. 3.

167. *Id.* at Art. 11.

168. *Id.* at Art. 12.

169. *Id.*

